10/561570

SEQUENCE LISTING   IAP20 RECEIVED 2 6 DEC 2005

<110> Bayer AG

<120> REGULATION OF A NOVEL KINASE, REGULATED IN COPD KINASE
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agcctacggc acagtatact gtggtctcac tagtcaagga cagctaatag ctgtaaaaca 3300
ggtggctttg gatacctcta ataaattagc tgctgaaaag gaataccgga aactacagga 3360
agaagtagat ttgctcaaag cactgaaaca tgtcaacatt gtggctatt tggggacatg 3420
cttgcaagag aacactgtga gcattttcat ggagtttgtt cctggtggct caatctctag 3480
tattataaac cgttttgggc cattgcctga gatggtgttc tgtaaatata cgaaacaaat 3540
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taatgttatg ctcatgccaa ctggaataat aaagctgatt gactttggct gtgccaggcg 3660
tttggcctgg gcaggtttaa atggcaccca cagtgacatg cttaagtcca tgcatgggac 3720
tccatattgg atggccccag aagtcatcaa tgagtctggc tatggacgga aatcagatat 3780
ctggagcatt ggttgtactg tgtttgagat ggctacaggg aagcctccac tggcttccat 3840
ggacaggatg gccgccatgt tttacatcgg agcacaccga gggctgatgc ctcctttacc 3900
agaccacttc tcagaaaatg cagcagactt tgtgcgcatg tgcctgacca gggaccagca 3960
tgagcgacct tctgctctcc agctcctgaa gcactccttc ttggagagaa gtcactgaat 4020
atacatcaag actttcttcc cagttccact gcagatgc                          4058
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<210> 5
<211> 1460
<212> DNA
<213> Homo sapiens

<400> 5
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ttcaaagaaa cagcagcttt tggacatttt aatgagttct atgccaaaac cagaaagaca 60
tgctgagtca ttgcttgaca tttgtcatga tacaaactct tctccaactg atttgatgac 120
agttaccaaa aatcaaaaca tcatcttgca aagcatcagc agaagtgagg agttcgacca 180
agatggtgac tgcagtcatt ccacactggt taatgaagaa gaagatccca gtggtggtag 240
acaggactgg caacccagga cagaaggtgt tgagatcact gtaactttc caagagatgt 300
cagtcctccc caagaaatga gccaagaaga cttaaaagaa aagaatctga taaactcatc 360
gcttcaagaa tgggcacaag cacatgcagt ttctcatcca aatgaaatag aaacggtgga 420
gctcaggaaa aagaagctga ccatgcggcc cttagttttg caaaaagagg aaagttccag 480
ggagctctgc aatgtgaact tgggcttttt gctaccaaga tcttgtttag aactgaacat 540
ttccaagtct gtaaccagag aagatgctcc tcattttctg aaggagcagc aaagaaaatc 600
tgaagagttt tcgacctctc atatgaagta cagtggccga agcatcaaga ggcatagtag 660
tgggctcagg atatatgaca gggaggagaa atttctcatc tcaaatgaaa agaagatatt 720
ttctgaaaat agtttaaagt ctgaagaacc tatcctatgg accaaggtag atttgctcaa 780
agcactgaaa catgtcaaca ttgtggccta tttggggaca tgcttgcaag agaacactgt 840
gagcattttc atggagtttg ttcctggtgg ctcaatctct agtattataa accgttttgg 900
gccattgcct gagatggtgt tctgtaaata tacgaaacaa atacttcaag gtgttgctta 960
tctccatgag aactgtgtgg tacatcgcga tatcaaagga aataatgtta tgctcatgcc 1020
aactggaata ataaagctga ttgactttgg ctgtgccagg cgtttggcct gggcaggttt 1080
aaatggcacc cacagtgaca tgcttaagtc catgcatggg actccatatt ggatggcccc 1140
agaagtcatc aatgagtctg gctatggacg gaaatcagat atctggagca ttggttgtac 1200
tgtgtttgag atggctacag ggaagcctcc actggcttcc atggacagga tggccgccat 1260
gttttacatc ggagcacacc gagggctgat gcctccttta ccagaccact ctcagaaaa 1320
tgcagcagac tttgtgcgca tgtgcctgac cagggaccag catgagcgac cttctgctct 1380
ccagctcctg aagcactcct tcttggagag aagtcactga atatacatca agactttctt 1440
cccagttcca ctgcagatgc                                              1460
```


<210> 6
<211> 1604
<212> DNA
<213> Homo sapiens

<400> 6
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ttcaaagaaa cagcagcttt tggacatttt aatgagttct atgccaaaac cagaaagaca 60
tgctgagtca ttgcttgaca tttgtcatga tacaaactct tctccaactg atttgatgac 120
agttaccaaa aatcaaaaca tcatcttgca aagcatcagc agaagtgagg agttcgacca 180
agatggtgac tgcagtcatt ccacactggt taatgaagaa gaagatccca gtggtggtag 240
acaggactgg caacccagga cagaaggtgt tgagatcact gtaactttc caagagatgt 300
cagtcctccc caagaaatga gccaagaaga cttaaaagaa aagaatctga taaactcatc 360
gcttcaagaa tgggcacaag cacatgcagt ttctcatcca aatgaaatag aaacggtgga 420
gctcaggaaa aagaagctga ccatgcggcc cttagttttg caaaaagagg aaagttccag 480
```

```
ggagctctgc aatgtgaact tgggcttttt gctaccaaga tcttgtttag aactgaacat 540
ttccaagtct gtaaccagag aagatgctcc tcattttctg aaggagcagc aaagaaaatc 600
tgaagagttt tcgacctctc atatgaagta cagtggccga agcatcaaga ggcatagtag 660
tgggctcagg atatatgaca gggaggagaa atttctcatc tcaaatgaaa agaagatatt 720
ttctgaaaat agtttaaagt ctgaagaacc tatcctatgg accaagggtg agattcttgg 780
aaagggagcc tacggcacag tatactgtgg tctcactagt caaggacagc taatagctgt 840
aaaacaggtg gctttggata cctctaataa attagctgct gaaaaggaat accggaaact 900
acaggaagaa gtagatttgc tcaaagcact gaaacatgtc aacattgtgg cctatttggg 960
gacatgcttg caagagaaca ctgtgagcat tttcatggag tttgttcctg gtggctcaat 1020
ctctagtatt ataaaccgtt ttgggccatt gcctgagatg gtgttctgta aatatacgaa 1080
acaaatactt caaggtgttg cttatctcca tgagaactgt gtggtacatc gcgatatcaa 1140
aggaaataat gttatgctca tgccaactgg aataataaag ctgattgact ttggctgtgc 1200
caggcgtttg gcctgggcag gtttaaatgg cacccacagt gacatgctta agtccatgca 1260
tgggactcca tattggatgg ccccagaagt catcaatgag tctggctatg gacggaaatc 1320
agatatctgg agcattggtt gtactgtgtt tgagatggct acagggaagc ctccactggc 1380
ttccatggac aggatggccg ccatgtttta catcggagca caccgagggc tgatgcctcc 1440
tttaccagac cacttctcag aaaatgcagc agactttgtg cgcatgtgcc tgaccaggga 1500
ccagcatgag cgaccttctg ctctccagct cctgaagcac tccttcttgg agagaagtca 1560
ctgaatatac atcaagactt tcttcccagt tccactgcag atgc            1604
```

```
<210> 7
<211> 1225
<212> PRT
<213> Homo sapiens

<400> 7
Ser Lys Lys Gln Gln Leu Leu Asp Ile Leu Met Ser Ser Met Pro Lys
1               5                   10                  15

Pro Glu Arg His Ala Glu Ser Leu Leu Asp Ile Cys His Asp Thr Asn
            20                  25                  30

Ser Ser Pro Thr Asp Leu Met Thr Val Thr Lys Asn Gln Asn Ile Ile
        35                  40                  45

Leu Gln Ser Ile Ser Arg Ser Glu Glu Phe Asp Gln Asp Gly Asp Cys
    50                  55                  60

Ser His Ser Thr Leu Val Asn Glu Glu Glu Asp Pro Ser Gly Gly Arg
65                  70                  75                  80

Gln Asp Trp Gln Pro Arg Thr Glu Glu Phe Ser Thr Ser His Met Lys
                85                  90                  95

Tyr Ser Gly Arg Ser Ile Lys Phe Leu Leu Pro Pro Leu Ser Leu Leu
            100                 105                 110

Pro Thr Arg Ser Gly Val Leu Thr Ile Pro Gln Asn His Lys Phe Pro
            115                 120                 125

Lys Glu Lys Glu Arg Asn Ile Pro Ser Leu Thr Ser Phe Val Pro Lys
    130                 135                 140

Leu Ser Val Ser Val Arg Gln Ser Asp Glu Leu Ser Pro Ser Asn Glu
145                 150                 155                 160

Pro Pro Gly Ala Leu Val Lys Ser Leu Met Asp Pro Thr Leu Arg Ser
                165                 170                 175

Ser Asp Gly Phe Ile Trp Ser Arg Asn Met Cys Ser Phe Pro Lys Thr
            180                 185                 190

Asn His His Arg Gln Cys Leu Glu Lys Glu Glu Asn Trp Lys Ser Lys
            195                 200                 205

Glu Ile Glu Glu Cys Asn Lys Ile Glu Ile Thr His Phe Glu Lys Gly
    210                 215                 220
```

Gln Ser Leu Val Ser Phe Glu Asn Leu Lys Glu Gly Asn Ile Pro Ala
225   230   235   240

Val Arg Glu Glu Asp Ile Asp Cys His Gly Ser Lys Thr Arg Lys Pro
                245   250   255

Glu Glu Glu Asn Ser Gln Tyr Leu Ser Ser Arg Lys Asn Glu Ser Ser
            260   265   270

Val Ala Lys Asn Tyr Glu Gln Asp Pro Glu Ile Val Cys Thr Ile Pro
        275   280   285

Ser Lys Phe Gln Glu Thr Gln His Ser Glu Ile Thr Pro Ser Gln Asp
        290   295   300

Glu Glu Met Arg Asn Asn Lys Ala Ala Ser Lys Arg Val Ser Leu His
305   310   315   320

Lys Asn Glu Ala Met Glu Pro Asn Asn Ile Leu Glu Glu Cys Thr Val
                325   330   335

Leu Lys Ser Leu Ser Ser Val Val Phe Asp Asp Pro Ile Asp Lys Leu
            340   345   350

Pro Glu Gly Cys Ser Ser Met Glu Thr Asn Ile Lys Ile Ser Ile Ala
            355   360   365

Glu Arg Ala Lys Pro Glu Met Ser Arg Met Val Pro Leu Ile His Ile
        370   375   380

Thr Phe Pro Val Asp Gly Ser Pro Lys Glu Pro Val Ile Ala Lys Pro
385   390   395   400

Ser Leu Gln Thr Arg Lys Gly Thr Ile His Asn Asn His Ser Val Asn
            405   410   415

Ile Pro Val His Gln Glu Asn Asp Lys His Lys Met Asn Ser His Arg
            420   425   430

Ser Lys Leu Asp Ser Lys Thr Lys Thr Ser Lys Lys Thr Pro Gln Asn
            435   440   445

Phe Val Ile Ser Thr Glu Gly Pro Ile Lys Pro Thr Met His Lys Thr
        450   455   460

Ser Ile Lys Thr Gln Ile Phe Pro Ala Leu Gly Leu Val Asp Pro Arg
465   470   475   480

Pro Trp Gln Leu Pro Arg Phe Gln Lys Lys Met Pro Gln Ile Ala Lys
                485   490   495

Lys Gln Ser Thr His Arg Thr Gln Lys Pro Lys Lys Gln Ser Phe Pro
            500   505   510

Cys Ile Cys Lys Asn Pro Gly Thr Gln Lys Ser Cys Val Pro Leu Ser
            515   520   525

Val Gln Pro Thr Glu Pro Arg Leu Asn Tyr Leu Asp Leu Lys Tyr Ser
        530   535   540

Asp Met Phe Lys Glu Ile Asn Ser Thr Ala Asn Gly Pro Gly Ile Tyr
545   550   555   560

Glu Met Phe Gly Thr Pro Val Tyr Cys His Val Arg Glu Thr Glu Arg
                565   570   575

```
Asp Glu Asn Thr  Tyr Tyr Arg Glu Ile Cys Ser Ala Pro Ser Gly Arg
            580                  585              590

Arg Ile Thr Asn Lys Cys Arg Ser Ser His Ser Glu Arg Lys Ser Asn
            595                  600              605

Ile Arg Thr Arg Leu Ser Gln Lys Lys Thr His Met Lys Cys Pro Lys
    610              615              620

Thr Ser Phe Gly Ile Lys Gln Glu His Lys Val Leu Ile Ser Lys Glu
625              630                  635              640

Lys Ser Ser Lys Ala Val His Ser Asn Leu His Asp Ile Glu Asn Gly
                645              650                  655

Asp Gly Ile Ser Glu Pro Asp Trp Gln Ile Lys Ser Ser Gly Asn Glu
            660              665              670

Phe Leu Ser Ser Lys Asp Glu Ile His Pro Met Asn Leu Ala Gln Thr
        675              680              685

Pro Glu Gln Ser Met Lys Gln Asn Glu Phe Pro Pro Val Ser Asp Leu
    690              695              700

Ser Ile Val Glu Glu Val Ser Met Glu Glu Ser Thr Gly Asp Arg Asp
705              710              715              720

Ile Ser Asn Asn Gln Ile Leu Thr Thr Ser Leu Arg Asp Leu Gln Glu
            725              730              735

Leu Glu Glu Leu His His Gln Ile Pro Phe Ile Pro Ser Glu Asp Ser
            740              745              750

Trp Ala Val Pro Ser Glu Lys Asn Ser Asn Lys Tyr Val Gln Gln Glu
        755              760              765

Lys Gln Asn Thr Ala Ser Leu Ser Lys Val Asn Ala Ser Arg Ile Leu
    770              775              780

Thr Asn Asp Leu Glu Phe Asp Ser Val Ser Asp His Ser Lys Thr Leu
785              790              795              800

Thr Asn Phe Ser Phe Gln Ala Lys Gln Glu Ser Ala Ser Ser Gln Thr
            805              810              815

Tyr Gln Tyr Trp Val His Tyr Leu Asp His Asp Ser Leu Ala Asn Lys
        820              825              830

Ser Ile Thr Tyr Gln Met Phe Gly Lys Thr Leu Ser Gly Thr Asn Ser
        835              840              845

Ile Ser Gln Glu Ile Met Asp Ser Val Asn Asn Glu Glu Leu Thr Asp
    850              855              860

Glu Leu Leu Gly Cys Leu Ala Ala Glu Leu Leu Ala Leu Asp Glu Lys
865              870              875              880

Asp Asn Asn Ser Cys Gln Lys Met Ala Asn Glu Thr Asp Pro Glu Asn
                885              890              895

Leu Asn Leu Val Leu Arg Trp Arg Gly Ser Thr Pro Lys Glu Met Gly
            900              905              910

Arg Glu Thr Thr Lys Val Lys Ile Gln Arg His Ser Ser Gly Leu Arg
    915              920              925

Ile Tyr Asp Arg Glu Glu Lys Phe Leu Ile Ser Asn Glu Lys Lys Ile
    930              935              940
```

Phe Ser Glu Asn Ser Leu Lys Ser Glu Glu Pro Ile Leu Trp Thr Lys
945   950   955   960

Gly Glu Ile Leu Gly Lys Gly Ala Tyr Gly Thr Val Tyr Cys Gly Leu
                965   970   975

Thr Ser Gln Gly Gln Leu Ile Ala Val Lys Gln Val Ala Leu Asp Thr
            980   985   990

Ser Asn Lys Leu Ala Ala Glu Lys Glu Tyr Arg Lys Leu Gln Glu Glu
        995   1000   1005

Val Asp Leu Leu Lys Ala Leu Lys His Val Asn Ile Val Ala Tyr Leu
    1010   1015   1020

Gly Thr Cys Leu Gln Glu Asn Thr Val Ser Ile Phe Met Glu Phe Val
1025   1030   1035   1040

Pro Gly Gly Ser Ile Ser Ser Ile Ile Asn Arg Phe Gly Pro Leu Pro
            1045   1050   1055

Glu Met Val Phe Cys Lys Tyr Thr Lys Gln Ile Leu Gln Gly Val Ala
        1060   1065   1070

Tyr Leu His Glu Asn Cys Val Val His Arg Asp Ile Lys Gly Asn Asn
    1075   1080   1085

Val Met Leu Met Pro Thr Gly Ile Ile Lys Leu Ile Asp Phe Gly Cys
    1090   1095   1100

Ala Arg Arg Leu Ala Trp Ala Gly Leu Asn Gly Thr His Ser Asp Met
1105   1110   1115   1120

Leu Lys Ser Met His Gly Thr Pro Tyr Trp Met Ala Pro Glu Val Ile
            1125   1130   1135

Asn Glu Ser Gly Tyr Gly Arg Lys Ser Asp Ile Trp Ser Ile Gly Cys
        1140   1145   1150

Thr Val Phe Glu Met Ala Thr Gly Lys Pro Pro Leu Ala Ser Met Asp
    1155   1160   1165

Arg Met Ala Ala Met Phe Tyr Ile Gly Ala His Arg Gly Leu Met Pro
    1170   1175   1180

Pro Leu Pro Asp His Phe Ser Glu Asn Ala Ala Asp Phe Val Arg Met
1185   1190   1195   1200

Cys Leu Thr Arg Asp Gln His Glu Arg Pro Ser Ala Leu Gln Leu Leu
            1205   1210   1215

Lys His Ser Phe Leu Glu Arg Ser His
            1220   1225

<210> 8
<211> 1080
<212> PRT
<213> Homo sapiens

<400> 8
Phe Asp Gln Asp Gly Asp Cys Ser His Ser Thr Leu Val Asn Glu Glu
1   5   10   15

Glu Asp Pro Ser Gly Gly Arg Gln Asp Trp Gln Pro Arg Thr Glu Gly
            20   25   30

```
Val Glu Ile Thr Val Thr Phe Pro Arg Asp Val Ser Pro Pro Gln Glu
         35              40              45

Met Ser Gln Glu Asp Leu Lys Glu Lys Asn Leu Ile Asn Ser Ser Leu
     50              55              60

Gln Glu Trp Ala Gln Ala His Ala Val Ser His Pro Asn Glu Ile Glu
65              70              75              80

Thr Val Glu Leu Arg Lys Lys Lys Leu Thr Met Arg Pro Leu Val Leu
             85              90              95

Gln Lys Glu Glu Ser Ser Arg Glu Leu Cys Asn Val Asn Leu Gly Phe
         100             105             110

Leu Leu Pro Arg Ser Cys Leu Glu Leu Asn Ile Ser Lys Ser Val Thr
         115             120             125

Arg Glu Asp Ala Pro His Phe Leu Lys Glu Gln Gln Arg Lys Ser Glu
     130             135             140

Glu Phe Ser Thr Ser His Met Lys Tyr Ser Gly Arg Ser Ile Lys Phe
145             150             155             160

Leu Leu Pro Pro Leu Ser Leu Leu Pro Thr Arg Ser Gly Val Leu Thr
             165             170             175

Ile Pro Gln Asn His Lys Phe Pro Lys Glu Lys Glu Arg Asn Ile Pro
         180             185             190

Ser Leu Thr Ser Phe Val Pro Lys Leu Ser Val Ser Val Arg Gln Ser
         195             200             205

Asp Glu Leu Ser Pro Ser Asn Glu Pro Pro Gly Ala Leu Val Lys Ser
     210             215             220

Leu Met Asp Pro Thr Leu Arg Ser Ser Asp Gly Phe Ile Trp Ser Arg
225             230             235             240

Asn Met Cys Ser Phe Pro Lys Thr Asn His His Arg Gln Cys Leu Glu
             245             250             255

Lys Glu Glu Asn Trp Lys Ser Lys Glu Ile Glu Glu Cys Asn Lys Ile
         260             265             270

Glu Ile Thr His Phe Glu Lys Gly Gln Ser Leu Val Ser Phe Glu Asn
     275             280             285

Leu Lys Glu Gly Asn Ile Pro Ala Val Arg Glu Glu Asp Ile Asp Cys
     290             295             300

His Gly Ser Lys Thr Arg Lys Pro Glu Glu Glu Asn Ser Gln Tyr Leu
305             310             315             320

Ser Ser Arg Lys Asn Glu Ser Ser Val Ala Lys Asn Tyr Glu Gln Asp
             325             330             335

Pro Glu Ile Val Cys Thr Ile Pro Ser Lys Phe Gln Glu Thr Gln His
         340             345             350

Ser Glu Ile Thr Pro Ser Gln Asp Glu Glu Met Arg Asn Asn Lys Ala
         355             360             365

Ala Ser Lys Arg Val Ser Leu His Lys Asn Glu Ala Met Glu Pro Asn
     370             375             380

Asn Ile Leu Glu Glu Cys Thr Val Leu Lys Ser Leu Ser Ser Val Val
385             390             395             400
```

```
Phe Asp Asp Pro Ile Asp Lys Leu Pro Glu Gly Cys Ser Ser Met Glu
             405         410              415

Thr Asn Ile Lys Ile Ser Ile Ala Glu Arg Ala Lys Pro Glu Met Ser
             420         425              430

Arg Met Val Pro Leu Ile His Ile Thr Phe Pro Val Asp Gly Ser Pro
             435         440              445

Lys Glu Pro Val Ile Ala Lys Pro Ser Leu Gln Thr Arg Lys Gly Thr
    450             455              460

Ile His Asn Asn His Ser Val Asn Ile Pro Val His Gln Glu Asn Asp
465             470              475              480

Lys His Lys Met Asn Ser His Arg Ser Lys Leu Asp Ser Lys Thr Lys
             485             490              495

Thr Ser Lys Lys Thr Pro Gln Asn Phe Val Ile Ser Thr Glu Gly Pro
         500             505         510

Ile Lys Pro Thr Met His Lys Thr Ser Ile Lys Thr Gln Ile Phe Pro
         515             520         525

Ala Leu Gly Leu Val Asp Pro Arg Pro Trp Gln Leu Pro Arg Phe Gln
    530             535              540

Lys Lys Met Pro Gln Ile Ala Lys Lys Gln Ser Thr His Arg Thr Gln
545             550              555              560

Lys Pro Lys Lys Gln Ser Phe Pro Cys Ile Cys Lys Asn Pro Gly Thr
             565              570              575

Gln Lys Ser Cys Val Pro Leu Ser Val Gln Pro Thr Glu Pro Arg Leu
         580             585              590

Asn Tyr Leu Asp Leu Lys Tyr Ser Asp Met Phe Lys Glu Ile Asn Ser
    595             600              605

Thr Ala Asn Gly Pro Gly Ile Tyr Glu Met Phe Gly Thr Pro Val Tyr
610             615              620

Cys His Val Arg Glu Thr Glu Arg Asp Glu Asn Thr Tyr Tyr Arg Glu
625             630              635              640

Ile Cys Ser Ala Pro Ser Gly Arg Arg Ile Thr Asn Lys Cys Arg Ser
             645              650              655

Ser His Ser Glu Arg Lys Ser Asn Ile Arg Thr Arg Leu Ser Gln Lys
             660              665              670

Lys Thr His Met Lys Cys Pro Lys Thr Ser Phe Gly Ile Lys Gln Glu
         675              680              685

His Lys Val Leu Ile Ser Lys Glu Lys Ser Ser Lys Ala Val His Ser
    690             695              700

Asn Leu His Asp Ile Glu Asn Gly Asp Gly Ile Ser Glu Pro Asp Trp
705             710              715              720

Gln Ile Lys Ser Ser Gly Asn Glu Phe Leu Ser Ser Lys Asp Glu Ile
             725              730              735

His Pro Met Asn Leu Ala Gln Thr Pro Glu Gln Ser Met Lys Gln Asn
             740              745              750
```

```
Glu Phe Pro Pro Val Ser Asp Leu Ser Ile Val Glu Glu Val Ser Met
        755                 760                 765

Glu Glu Ser Thr Gly Asp Arg Asp Ile Ser Asn Asn Gln Ile Leu Thr
        770                 775                 780

Thr Ser Leu Arg Asp Leu Gln Glu Leu Glu Glu Leu His His Gln Ile
785                 790                 795                 800

Pro Phe Ile Pro Ser Glu Asp Ser Trp Ala Val Pro Ser Glu Lys Asn
                805                 810                 815

Ser Asn Lys Tyr Val Gln Gln Glu Lys Gln Asn Thr Ala Ser Leu Ser
            820                 825                 830

Lys Val Asn Ala Ser Arg Ile Leu Thr Asn Asp Leu Glu Phe Asp Ser
        835                 840                 845

Val Ser Asp His Ser Lys Thr Leu Thr Asn Phe Ser Phe Gln Ala Lys
    850                 855                 860

Gln Glu Ser Ala Ser Ser Gln Thr Tyr Gln Tyr Trp Val His Tyr Leu
865                 870                 875                 880

Asp His Asp Ser Leu Ala Asn Lys Ser Ile Thr Tyr Gln Met Phe Gly
                885                 890                 895

Lys Thr Leu Ser Gly Thr Asn Ser Ile Ser Gln Glu Ile Met Asp Ser
                900                 905                 910

Val Asn Asn Glu Glu Leu Thr Asp Glu Leu Leu Gly Cys Leu Ala Ala
            915                 920                 925

Glu Leu Leu Ala Leu Asp Glu Lys Asp Asn Asn Ser Cys Gln Lys Met
    930                 935                 940

Ala Asn Glu Thr Asp Pro Glu Asn Leu Asn Leu Val Leu Arg Trp Arg
945                 950                 955                 960

Gly Ser Thr Pro Lys Glu Met Gly Arg Glu Thr Thr Lys Val Lys Ile
                965                 970                 975

Gln Arg His Ser Ser Gly Leu Arg Ile Tyr Asp Arg Glu Glu Lys Phe
            980                 985                 990

Leu Ile Ser Asn Glu Lys Lys Ile Phe Ser Glu Asn Ser Leu Lys Ser
        995                 1000                1005

Glu Glu Pro Ile Leu Trp Thr Lys Gly Glu Ile Leu Gly Lys Gly Ala
    1010                1015                1020

Tyr Gly Thr Val Tyr Cys Gly Leu Thr Ser Gln Gly Gln Leu Ile Ala
1025                1030                1035                1040

Val Lys Gln Val Ala Leu Asp Thr Ser Asn Lys Leu Ala Ala Glu Lys
                1045                1050                1055

Glu Tyr Arg Lys Leu Gln Glu Glu Val Asp Leu Leu Lys Ala Leu Lys
            1060                1065                1070

His Val Pro Asp Gln Gly Pro Ala
        1075                1080
```

<210> 9
<211> 1137
<212> PRT
<213> Homo sapiens

<400> 9

```
Ser Lys Lys Gln Gln Leu Leu Asp Ile Leu Met Ser Ser Met Pro Lys
1               5                   10                  15

Pro Glu Arg His Ala Glu Ser Leu Leu Asp Ile Cys His Asp Thr Asn
            20                  25                  30

Ser Ser Pro Thr Asp Leu Met Thr Val Thr Lys Asn Gln Asn Ile Ile
        35                  40                  45

Leu Gln Ser Ile Ser Arg Ser Glu Glu Phe Asp Gln Asp Gly Asp Cys
    50                  55                  60

Ser His Ser Thr Leu Val Asn Glu Glu Glu Asp Pro Ser Gly Gly Arg
65                  70                  75                  80

Gln Asp Trp Gln Pro Arg Thr Glu Gly Val Glu Ile Thr Val Thr Phe
                85                  90                  95

Pro Arg Asp Val Ser Pro Pro Gln Glu Met Ser Gln Glu Asp Leu Lys
            100                 105                 110

Glu Lys Asn Leu Ile Asn Ser Ser Leu Gln Glu Trp Ala Gln Ala His
        115                 120                 125

Ala Val Ser His Pro Asn Glu Ile Glu Thr Val Glu Leu Arg Lys Lys
130                 135                 140

Lys Leu Thr Met Arg Pro Leu Val Leu Gln Lys Glu Glu Ser Ser Arg
145                 150                 155                 160

Glu Leu Cys Asn Val Asn Leu Gly Phe Leu Leu Pro Arg Ser Cys Leu
            165                 170                 175

Glu Leu Asn Ile Ser Lys Ser Val Thr Arg Glu Asp Ala Pro His Phe
            180                 185                 190

Leu Lys Glu Gln Gln Arg Lys Ser Glu Glu Phe Ser Thr Ser His Met
            195                 200                 205

Lys Tyr Ser Gly Arg Ser Ile Lys Phe Leu Leu Pro Pro Leu Ser Leu
    210                 215                 220

Leu Pro Thr Arg Ser Gly Val Leu Thr Ile Pro Gln Asn His Lys Phe
225                 230                 235                 240

Pro Lys Glu Lys Glu Arg Asn Ile Pro Ser Leu Thr Ser Phe Val Pro
            245                 250                 255

Lys Leu Ser Val Ser Val Arg Gln Ser Asp Glu Leu Ser Pro Ser Asn
            260                 265                 270

Glu Pro Pro Gly Ala Leu Val Lys Ser Leu Met Asp Pro Thr Leu Arg
    275                 280                 285

Ser Ser Asp Gly Phe Ile Trp Ser Arg Asn Met Cys Ser Phe Pro Lys
    290                 295                 300

Thr Asn His His Arg Gln Cys Leu Glu Lys Glu Asn Trp Lys Ser
305                 310                 315                 320

Lys Glu Ile Glu Glu Cys Asn Lys Ile Glu Ile Thr His Phe Glu Lys
            325                 330                 335

Gly Gln Ser Leu Val Ser Phe Glu Asn Leu Lys Glu Gly Asn Ile Pro
            340                 345                 350
```

```
Ala Val Arg Glu Glu Asp Ile Asp Cys His Gly Ser Lys Thr Arg Lys
        355             360                 365

Pro Glu Glu Glu Asn Ser Gln Tyr Leu Ser Ser Arg Lys Asn Glu Ser
    370             375             380

Ser Val Ala Lys Asn Tyr Glu Gln Asp Pro Glu Ile Val Cys Thr Ile
385             390             395                 400

Pro Ser Lys Phe Gln Glu Thr Gln His Ser Glu Ile Thr Pro Ser Gln
            405             410                 415

Asp Glu Glu Met Arg Asn Asn Lys Ala Ala Ser Lys Arg Val Ser Leu
            420             425             430

His Lys Asn Glu Ala Met Glu Pro Asn Asn Ile Leu Glu Glu Cys Thr
    435             440             445

Val Leu Lys Ser Leu Ser Ser Val Val Phe Asp Asp Pro Ile Asp Lys
    450             455             460

Leu Pro Glu Gly Cys Ser Ser Met Glu Thr Asn Ile Lys Ile Ser Ile
465             470             475             480

Ala Glu Arg Ala Lys Pro Glu Met Ser Arg Met Val Pro Leu Ile His
            485             490             495

Ile Thr Phe Pro Val Asp Gly Ser Pro Lys Glu Pro Val Ile Ala Lys
            500             505             510

Pro Ser Leu Gln Thr Arg Lys Gly Thr Ile His Asn Asn His Ser Val
    515             520             525

Asn Ile Pro Val His Gln Glu Asn Asp Lys His Lys Met Asn Ser His
    530             535             540

Arg Ser Lys Leu Asp Ser Lys Thr Lys Thr Ser Lys Lys Thr Pro Gln
545             550             555             560

Asn Phe Val Ile Ser Thr Glu Gly Pro Ile Lys Pro Thr Met His Lys
            565             570             575

Thr Ser Ile Lys Thr Gln Ile Phe Pro Ala Leu Gly Leu Val Asp Pro
            580             585             590

Arg Pro Trp Gln Leu Pro Arg Phe Gln Lys Lys Met Pro Gln Ile Ala
    595             600             605

Lys Lys Gln Ser Thr His Arg Thr Gln Lys Pro Lys Lys Gln Ser Phe
    610             615             620

Pro Cys Ile Cys Lys Asn Pro Gly Thr Gln Lys Ser Cys Val Pro Leu
625             630             635             640

Ser Val Gln Pro Thr Glu Pro Arg Leu Asn Tyr Leu Asp Leu Lys Tyr
            645             650             655

Ser Asp Met Phe Lys Glu Ile Asn Ser Thr Ala Asn Gly Pro Gly Ile
            660             665             670

Tyr Glu Met Phe Gly Thr Pro Val Tyr Cys His Val Arg Glu Thr Glu
            675             680             685

Arg Asp Glu Asn Thr Tyr Tyr Arg Glu Ile Cys Ser Ala Pro Ser Gly
    690             695             700

Arg Arg Ile Thr Asn Lys Cys Arg Ser Ser His Ser Glu Arg Lys Ser
705             710             715             720
```

Asn Ile Arg Thr Arg Leu Ser Gln Lys Lys Thr His Met Lys Cys Pro
            725   730   735

Lys Thr Ser Phe Gly Ile Lys Gln Glu His Lys Val Leu Ile Ser Lys
            740   745   750

Glu Lys Ser Ser Lys Ala Val His Ser Asn Leu His Asp Ile Glu Asn
            755   760   765

Gly Asp Gly Ile Ser Glu Pro Asp Trp Gln Ile Lys Ser Ser Gly Asn
    770   775   780

Glu Phe Leu Ser Ser Lys Asp Glu Ile His Pro Met Asn Leu Ala Gln
785   790   795   800

Thr Pro Glu Gln Ser Met Lys Gln Asn Glu Phe Pro Pro Val Ser Asp
                805   810   815

Leu Ser Ile Val Glu Glu Val Ser Met Glu Glu Ser Thr Gly Asp Arg
            820   825   830

Asp Ile Ser Asn Asn Gln Ile Leu Thr Thr Ser Leu Arg Asp Leu Gln
            835   840   845

Glu Leu Glu Glu Leu His His Gln Ile Pro Phe Ile Pro Ser Glu Asp
    850   855   860

Ser Trp Ala Val Pro Ser Glu Lys Asn Ser Asn Lys Tyr Val Gln Gln
865   870   875   880

Glu Lys Gln Asn Thr Ala Ser Leu Ser Lys Val Asn Ala Ser Arg Ile
                885   890   895

Leu Thr Asn Asp Leu Glu Phe Asp Ser Val Ser Asp His Ser Lys Thr
            900   905   910

Leu Thr Asn Phe Ser Phe Gln Ala Lys Gln Glu Ser Ala Ser Ser Gln
    915   920   925

Thr Tyr Gln Tyr Trp Val His Tyr Leu Asp His Asp Ser Leu Ala Asn
    930   935   940

Lys Ser Ile Thr Tyr Gln Met Phe Gly Lys Thr Leu Ser Gly Thr Asn
945   950   955   960

Ser Ile Ser Gln Glu Ile Met Asp Ser Val Asn Asn Glu Glu Leu Thr
            965   970   975

Asp Glu Leu Leu Gly Cys Leu Ala Ala Glu Leu Leu Ala Leu Asp Glu
            980   985   990

Lys Asp Asn Asn Ser Cys Gln Lys Met Ala Asn Glu Thr Asp Pro Glu
            995   1000   1005

Asn Leu Asn Leu Val Leu Arg Trp Arg Gly Ser Thr Pro Lys Glu Met
    1010   1015   1020

Gly Arg Glu Thr Thr Lys Val Lys Ile Gln Arg His Ser Ser Gly Leu
1025   1030   1035   1040

Arg Ile Tyr Asp Arg Glu Glu Lys Phe Leu Ile Ser Asn Glu Lys Lys
            1045   1050   1055

Ile Phe Ser Glu Asn Ser Leu Lys Ser Glu Glu Pro Ile Leu Trp Thr
    1060   1065   1070

```
Lys Gly Glu Ile Leu Gly Lys Gly Ala Tyr Gly Thr Val Tyr Cys Gly
    1075                1080                1085

Leu Thr Ser Gln Gly Gln Leu Ile Ala Val Lys Gln Val Ala Leu Asp
    1090                1095                1100

Thr Ser Asn Lys Leu Ala Ala Glu Lys Glu Tyr Arg Lys Leu Gln Glu
1105                1110                1115                1120

Glu Val Asp Leu Leu Lys Ala Leu Lys His Val Pro Asp Gln Gly Pro
                1125                1130                1135

Ala
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<210> 10
<211> 1338
<212> PRT
<213> Homo sapiens

<400> 10
Ser Lys Lys Gln Gln Leu Leu Asp Ile Leu Met Ser Ser Met Pro Lys
    1                5                10                15

Pro Glu Arg His Ala Glu Ser Leu Leu Asp Ile Cys His Asp Thr Asn
            20                25                30

Ser Ser Pro Thr Asp Leu Met Thr Val Thr Lys Asn Gln Asn Ile Ile
        35                40                45

Leu Gln Ser Ile Ser Arg Ser Glu Glu Phe Asp Gln Asp Gly Asp Cys
    50                55                60

Ser His Ser Thr Leu Val Asn Glu Glu Glu Asp Pro Ser Gly Gly Arg
65                70                75                80

Gln Asp Trp Gln Pro Arg Thr Glu Gly Val Glu Ile Thr Val Thr Phe
            85                90                95

Pro Arg Asp Val Ser Pro Pro Gln Glu Met Ser Gln Glu Asp Leu Lys
            100                105                110

Glu Lys Asn Leu Ile Asn Ser Ser Leu Gln Glu Trp Ala Gln Ala His
        115                120                125

Ala Val Ser His Pro Asn Glu Ile Glu Thr Val Glu Leu Arg Lys Lys
    130                135                140

Lys Leu Thr Met Arg Pro Leu Val Leu Gln Lys Glu Glu Ser Ser Arg
145                150                155                160

Glu Leu Cys Asn Val Asn Leu Gly Phe Leu Leu Pro Arg Ser Cys Leu
            165                170                175

Glu Leu Asn Ile Ser Lys Ser Val Thr Arg Glu Asp Ala Pro His Phe
        180                185                190

Leu Lys Glu Gln Gln Arg Lys Ser Glu Glu Phe Ser Thr Ser His Met
    195                200                205

Lys Tyr Ser Gly Arg Ser Ile Lys Phe Leu Leu Pro Pro Leu Ser Leu
    210                215                220

Leu Pro Thr Arg Ser Gly Val Leu Thr Ile Pro Gln Asn His Lys Phe
225                230                235                240
```

```
Pro Lys Glu Lys Glu Arg Asn Ile Pro Ser Leu Thr Ser Phe Val Pro
              245               250               255

Lys Leu Ser Val Ser Val Arg Gln Ser Asp Glu Leu Ser Pro Ser Asn
              260               265               270

Glu Pro Pro Gly Ala Leu Val Lys Ser Leu Met Asp Pro Thr Leu Arg
         275               280               285

Ser Ser Asp Gly Phe Ile Trp Ser Arg Asn Met Cys Ser Phe Pro Lys
         290               295               300

Thr Asn His His Arg Gln Cys Leu Glu Lys Glu Glu Asn Trp Lys Ser
305               310               315               320

Lys Glu Ile Glu Glu Cys Asn Lys Ile Glu Ile Thr His Phe Glu Lys
              325               330               335

Gly Gln Ser Leu Val Ser Phe Glu Asn Leu Lys Glu Gly Asn Ile Pro
              340               345               350

Ala Val Arg Glu Glu Asp Ile Asp Cys His Gly Ser Lys Thr Arg Lys
              355               360               365

Pro Glu Glu Glu Asn Ser Gln Tyr Leu Ser Ser Arg Lys Asn Glu Ser
    370               375               380

Ser Val Ala Lys Asn Tyr Glu Gln Asp Pro Glu Ile Val Cys Thr Ile
385               390               395               400

Pro Ser Lys Phe Gln Glu Thr Gln His Ser Glu Ile Thr Pro Ser Gln
              405               410               415

Asp Glu Glu Met Arg Asn Asn Lys Ala Ala Ser Lys Arg Val Ser Leu
              420               425               430

His Lys Asn Glu Ala Met Glu Pro Asn Asn Ile Leu Glu Glu Cys Thr
         435               440               445

Val Leu Lys Ser Leu Ser Ser Val Val Phe Asp Asp Pro Ile Asp Lys
    450               455               460

Leu Pro Glu Gly Cys Ser Ser Met Glu Thr Asn Ile Lys Ile Ser Ile
465               470               475               480

Ala Glu Arg Ala Lys Pro Glu Met Ser Arg Met Val Pro Leu Ile His
              485               490               495

Ile Thr Phe Pro Val Asp Gly Ser Pro Lys Glu Pro Val Ile Ala Lys
         500               505               510

Pro Ser Leu Gln Thr Arg Lys Gly Thr Ile His Asn Asn His Ser Val
         515               520               525

Asn Ile Pro Val His Gln Glu Asn Asp Lys His Lys Met Asn Ser His
    530               535               540

Arg Ser Lys Leu Asp Ser Lys Thr Lys Thr Ser Lys Lys Thr Pro Gln
545               550               555               560

Asn Phe Val Ile Ser Thr Glu Gly Pro Ile Lys Pro Thr Met His Lys
              565               570               575

Thr Ser Ile Lys Thr Gln Ile Phe Pro Ala Leu Gly Leu Val Asp Pro
              580               585               590

Arg Pro Trp Gln Leu Pro Arg Phe Gln Lys Lys Met Pro Gln Ile Ala
         595               600               605
```

Lys Lys Gln Ser Thr His Arg Thr Gln Lys Pro Lys Lys Gln Ser Phe
610   615   620

Pro Cys Ile Cys Lys Asn Pro Gly Thr Gln Lys Ser Cys Val Pro Leu
625   630   635   640

Ser Val Gln Pro Thr Glu Pro Arg Leu Asn Tyr Leu Asp Leu Lys Tyr
645   650   655

Ser Asp Met Phe Lys Glu Ile Asn Ser Thr Ala Asn Gly Pro Gly Ile
660   665   670

Tyr Glu Met Phe Gly Thr Pro Val Tyr Cys His Val Arg Glu Thr Glu
675   680   685

Arg Asp Glu Asn Thr Tyr Tyr Arg Glu Ile Cys Ser Ala Pro Ser Gly
690   695   700

Arg Arg Ile Thr Asn Lys Cys Arg Ser Ser His Ser Glu Arg Lys Ser
705   710   715   720

Asn Ile Arg Thr Arg Leu Ser Gln Lys Lys Thr His Met Lys Cys Pro
725   730   735

Lys Thr Ser Phe Gly Ile Lys Gln Glu His Lys Val Leu Ile Ser Lys
740   745   750

Glu Lys Ser Ser Lys Ala Val His Ser Asn Leu His Asp Ile Glu Asn
755   760   765

Gly Asp Gly Ile Ser Glu Pro Asp Trp Gln Ile Lys Ser Ser Gly Asn
770   775   780

Glu Phe Leu Ser Ser Lys Asp Glu Ile His Pro Met Asn Leu Ala Gln
785   790   795   800

Thr Pro Glu Gln Ser Met Lys Gln Asn Glu Phe Pro Pro Val Ser Asp
805   810   815

Leu Ser Ile Val Glu Glu Val Ser Met Glu Glu Ser Thr Gly Asp Arg
820   825   830

Asp Ile Ser Asn Asn Gln Ile Leu Thr Thr Ser Leu Arg Asp Leu Gln
835   840   845

Glu Leu Glu Glu Leu His His Gln Ile Pro Phe Ile Pro Ser Glu Asp
850   855   860

Ser Trp Ala Val Pro Ser Glu Lys Asn Ser Asn Lys Tyr Val Gln Gln
865   870   875   880

Glu Lys Gln Asn Thr Ala Ser Leu Ser Lys Val Asn Ala Ser Arg Ile
885   890   895

Leu Thr Asn Asp Leu Glu Phe Asp Ser Val Ser Asp His Ser Lys Thr
900   905   910

Leu Thr Asn Phe Ser Phe Gln Ala Lys Gln Glu Ser Ala Ser Ser Gln
915   920   925

Thr Tyr Gln Tyr Trp Val His Tyr Leu Asp His Asp Ser Leu Ala Asn
930   935   940

Lys Ser Ile Thr Tyr Gln Met Phe Gly Lys Thr Leu Ser Gly Thr Asn
945   950   955   960

Ser Ile Ser Gln Glu Ile Met Asp Ser Val Asn Asn Glu Glu Leu Thr
              965   970   975

Asp Glu Leu Leu Gly Cys Leu Ala Ala Glu Leu Leu Ala Leu Asp Glu
              980   985   990

Lys Asp Asn Asn Ser Cys Gln Lys Met Ala Asn Glu Thr Asp Pro Glu
              995   1000   1005

Asn Leu Asn Leu Val Leu Arg Trp Arg Gly Ser Thr Pro Lys Glu Met
   1010   1015   1020

Gly Arg Glu Thr Thr Lys Val Lys Ile Gln Arg His Ser Ser Gly Leu
1025   1030   1035   1040

Arg Ile Tyr Asp Arg Glu Glu Lys Phe Leu Ile Ser Asn Glu Lys Lys
              1045   1050   1055

Ile Phe Ser Glu Asn Ser Leu Lys Ser Glu Glu Pro Ile Leu Trp Thr
              1060   1065   1070

Lys Gly Glu Ile Leu Gly Lys Gly Ala Tyr Gly Thr Val Tyr Cys Gly
              1075   1080   1085

Leu Thr Ser Gln Gly Gln Leu Ile Ala Val Lys Gln Val Ala Leu Asp
   1090   1095   1100

Thr Ser Asn Lys Leu Ala Ala Glu Lys Glu Tyr Arg Lys Leu Gln Glu
1105   1110   1115   1120

Glu Val Asp Leu Leu Lys Ala Leu Lys His Val Asn Ile Val Ala Tyr
              1125   1130   1135

Leu Gly Thr Cys Leu Gln Glu Asn Thr Val Ser Ile Phe Met Glu Phe
              1140   1145   1150

Val Pro Gly Gly Ser Ile Ser Ser Ile Ile Asn Arg Phe Gly Pro Leu
   1155   1160   1165

Pro Glu Met Val Phe Cys Lys Tyr Thr Lys Gln Ile Leu Gln Gly Val
   1170   1175   1180

Ala Tyr Leu His Glu Asn Cys Val Val His Arg Asp Ile Lys Gly Asn
1185   1190   1195   1200

Asn Val Met Leu Met Pro Thr Gly Ile Ile Lys Leu Ile Asp Phe Gly
              1205   1210   1215

Cys Ala Arg Arg Leu Ala Trp Ala Gly Leu Asn Gly Thr His Ser Asp
              1220   1225   1230

Met Leu Lys Ser Met His Gly Thr Pro Tyr Trp Met Ala Pro Glu Val
   1235   1240   1245

Ile Asn Glu Ser Gly Tyr Gly Arg Lys Ser Asp Ile Trp Ser Ile Gly
   1250   1255   1260

Cys Thr Val Phe Glu Met Ala Thr Gly Lys Pro Pro Leu Ala Ser Met
1265   1270   1275   1280

Asp Arg Met Ala Ala Met Phe Tyr Ile Gly Ala His Arg Gly Leu Met
              1285   1290   1295

Pro Pro Leu Pro Asp His Phe Ser Glu Asn Ala Ala Asp Phe Val Arg
              1300   1305   1310

Met Cys Leu Thr Arg Asp Gln His Glu Arg Pro Ser Ala Leu Gln Leu
              1315   1320   1325

Leu Lys His Ser Phe Leu Glu Arg Ser His
    1330   1335

<210> 11
<211> 472
<212> PRT
<213> Homo sapiens

<400> 11
Ser Lys Lys Gln Gln Leu Leu Asp Ile Leu Met Ser Ser Met Pro Lys
  1   5   10   15

Pro Glu Arg His Ala Glu Ser Leu Leu Asp Ile Cys His Asp Thr Asn
               20   25   30

Ser Ser Pro Thr Asp Leu Met Thr Val Thr Lys Asn Gln Asn Ile Ile
          35   40   45

Leu Gln Ser Ile Ser Arg Ser Glu Glu Phe Asp Gln Asp Gly Asp Cys
     50   55   60

Ser His Ser Thr Leu Val Asn Glu Glu Glu Asp Pro Ser Gly Gly Arg
 65   70   75   80

Gln Asp Trp Gln Pro Arg Thr Glu Gly Val Glu Ile Thr Val Thr Phe
               85   90   95

Pro Arg Asp Val Ser Pro Pro Gln Glu Met Ser Gln Glu Asp Leu Lys
              100   105   110

Glu Lys Asn Leu Ile Asn Ser Ser Leu Gln Glu Trp Ala Gln Ala His
         115   120   125

Ala Val Ser His Pro Asn Glu Ile Glu Thr Val Glu Leu Arg Lys Lys
    130   135   140

Lys Leu Thr Met Arg Pro Leu Val Leu Gln Lys Glu Glu Ser Ser Arg
145   150   155   160

Glu Leu Cys Asn Val Asn Leu Gly Phe Leu Leu Pro Arg Ser Cys Leu
              165   170   175

Glu Leu Asn Ile Ser Lys Ser Val Thr Arg Glu Asp Ala Pro His Phe
         180   185   190

Leu Lys Glu Gln Gln Arg Lys Ser Glu Glu Phe Ser Thr Ser His Met
     195   200   205

Lys Tyr Ser Gly Arg Ser Ile Lys Arg His Ser Ser Gly Leu Arg Ile
    210   215   220

Tyr Asp Arg Glu Glu Lys Phe Leu Ile Ser Asn Glu Lys Lys Ile Phe
225   230   235   240

Ser Glu Asn Ser Leu Lys Ser Glu Glu Pro Ile Leu Trp Thr Lys Val
              245   250   255

Asp Leu Leu Lys Ala Leu Lys His Val Asn Ile Val Ala Tyr Leu Gly
              260   265   270

Thr Cys Leu Gln Glu Asn Thr Val Ser Ile Phe Met Glu Phe Val Pro
     275   280   285

Gly Gly Ser Ile Ser Ser Ile Ile Asn Arg Phe Gly Pro Leu Pro Glu
290   295   300

```
Met Val Phe Cys Lys Tyr Thr Lys Gln Ile Leu Gln Gly Val Ala Tyr
305             310             315             320

Leu His Glu Asn Cys Val Val His Arg Asp Ile Lys Gly Asn Asn Val
            325             330             335

Met Leu Met Pro Thr Gly Ile Ile Lys Leu Ile Asp Phe Gly Cys Ala
            340             345             350

Arg Arg Leu Ala Trp Ala Gly Leu Asn Gly Thr His Ser Asp Met Leu
            355             360             365

Lys Ser Met His Gly Thr Pro Tyr Trp Met Ala Pro Glu Val Ile Asn
            370             375             380

Glu Ser Gly Tyr Gly Arg Lys Ser Asp Ile Trp Ser Ile Gly Cys Thr
385             390             395             400

Val Phe Glu Met Ala Thr Gly Lys Pro Pro Leu Ala Ser Met Asp Arg
            405             410             415

Met Ala Ala Met Phe Tyr Ile Gly Ala His Arg Gly Leu Met Pro Pro
            420             425             430

Leu Pro Asp His Phe Ser Glu Asn Ala Ala Asp Phe Val Arg Met Cys
            435             440             445

Leu Thr Arg Asp Gln His Glu Arg Pro Ser Ala Leu Gln Leu Leu Lys
    450             455             460

His Ser Phe Leu Glu Arg Ser His
465             470
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<210> 12
<211> 520
<212> PRT
<213> Homo sapiens

<400> 12

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Ser Lys Lys Gln Gln Leu Leu Asp Ile Leu Met Ser Ser Met Pro Lys
  1             5               10              15

Pro Glu Arg His Ala Glu Ser Leu Leu Asp Ile Cys His Asp Thr Asn
            20              25              30

Ser Ser Pro Thr Asp Leu Met Thr Val Thr Lys Asn Gln Asn Ile Ile
        35              40              45

Leu Gln Ser Ile Ser Arg Ser Glu Glu Phe Asp Gln Asp Gly Asp Cys
    50              55              60

Ser His Ser Thr Leu Val Asn Glu Glu Glu Asp Pro Ser Gly Gly Arg
65              70              75              80

Gln Asp Trp Gln Pro Arg Thr Glu Gly Val Glu Ile Thr Val Thr Phe
                85              90              95

Pro Arg Asp Val Ser Pro Pro Gln Glu Met Ser Gln Glu Asp Leu Lys
            100             105             110

Glu Lys Asn Leu Ile Asn Ser Ser Leu Gln Glu Trp Ala Gln Ala His
            115             120             125

Ala Val Ser His Pro Asn Glu Ile Glu Thr Val Glu Leu Arg Lys Lys
            130             135             140
```

Lys Leu Thr Met Arg Pro Leu Val Leu Gln Lys Glu Glu Ser Ser Arg
145   150   155   160

Glu Leu Cys Asn Val Asn Leu Gly Phe Leu Leu Pro Arg Ser Cys Leu
            165   170   175

Glu Leu Asn Ile Ser Lys Ser Val Thr Arg Glu Asp Ala Pro His Phe
            180   185   190

Leu Lys Glu Gln Gln Arg Lys Ser Glu Glu Phe Ser Thr Ser His Met
        195   200   205

Lys Tyr Ser Gly Arg Ser Ile Lys Arg His Ser Ser Gly Leu Arg Ile
        210   215   220

Tyr Asp Arg Glu Glu Lys Phe Leu Ile Ser Asn Glu Lys Lys Ile Phe
225   230   235   240

Ser Glu Asn Ser Leu Lys Ser Glu Glu Pro Ile Leu Trp Thr Lys Gly
            245   250   255

Glu Ile Leu Gly Lys Gly Ala Tyr Gly Thr Val Tyr Cys Gly Leu Thr
            260   265   270

Ser Gln Gly Gln Leu Ile Ala Val Lys Gln Val Ala Leu Asp Thr Ser
        275   280   285

Asn Lys Leu Ala Ala Glu Lys Glu Tyr Arg Lys Leu Gln Glu Glu Val
        290   295   300

Asp Leu Leu Lys Ala Leu Lys His Val Asn Ile Val Ala Tyr Leu Gly
305   310   315   320

Thr Cys Leu Gln Glu Asn Thr Val Ser Ile Phe Met Glu Phe Val Pro
            325   330   335

Gly Gly Ser Ile Ser Ser Ile Ile Asn Arg Phe Gly Pro Leu Pro Glu
            340   345   350

Met Val Phe Cys Lys Tyr Thr Lys Gln Ile Leu Gln Gly Val Ala Tyr
            355   360   365

Leu His Glu Asn Cys Val Val His Arg Asp Ile Lys Gly Asn Asn Val
            370   375   380

Met Leu Met Pro Thr Gly Ile Ile Lys Leu Ile Asp Phe Gly Cys Ala
385   390   395   400

Arg Arg Leu Ala Trp Ala Gly Leu Asn Gly Thr His Ser Asp Met Leu
            405   410   415

Lys Ser Met His Gly Thr Pro Tyr Trp Met Ala Pro Glu Val Ile Asn
            420   425   430

Glu Ser Gly Tyr Gly Arg Lys Ser Asp Ile Trp Ser Ile Gly Cys Thr
        435   440   445

Val Phe Glu Met Ala Thr Gly Lys Pro Pro Leu Ala Ser Met Asp Arg
        450   455   460

Met Ala Ala Met Phe Tyr Ile Gly Ala His Arg Gly Leu Met Pro Pro
465   470   475   480

Leu Pro Asp His Phe Ser Glu Asn Ala Ala Asp Phe Val Arg Met Cys
            485   490   495

Leu Thr Arg Asp Gln His Glu Arg Pro Ser Ala Leu Gln Leu Leu Lys
            500   505   510

His Ser Phe Leu Glu Arg Ser His
       515   520

<210> 13
<211> 24
<212> DNA
<213> Homo sapiens

<220>
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<222> (1)..(24)

<400> 13
aatggcaccc acagtgacat gctt   24

<210> 14
<211> 24
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(24)
<223> Primer

<400> 14
ccctcggtgt gctccgatgt aaaa   24

<210> 15
<211> 24
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(28)
<223> Primer

<400> 15
ttcaaagaaa cagcagcttt tggacatt   28

<210> 16
<211> 24
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(25)
<223> Primer

<400> 16
gcatctgcag tggaactggg aagaa   25